

Alg. 2 Warm Up #1-4

Solve:

1.  $40x - 5x^2 - 35 > 0$

2.  $|8x - 14| < 18$

←

←

3.  $3|x - 7| \geq 24$

←

Alg. 2B Ch. 4 Homework #2

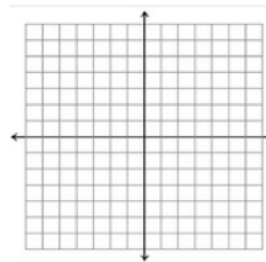
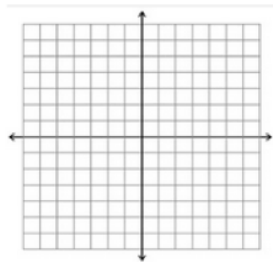
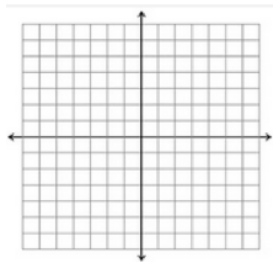
Name \_\_\_\_\_ Team \_\_\_\_\_ Per \_\_\_\_\_

1. Graph the inequality or system of inequalities. Shade the solution region.

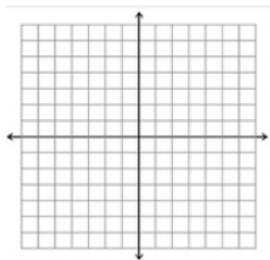
a.  $3x + 4y > -12$   
 $y < (x + 1)^2 + 3$

b.  $y \leq \frac{1}{2}|x - 3|$   
 $y \leq -(x - 3)^2 + 6$

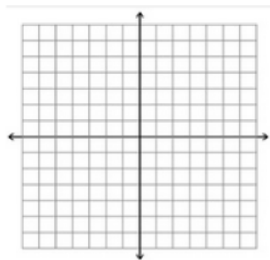
c.  $x \geq -3$   
 $y < (x + 4)^2 - 2$



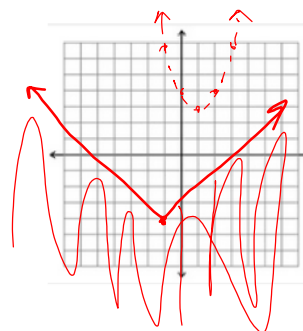
d.  $y > |x+2| - 1$   
 $y \leq 3$



e.  $y > -|x-3| + 5$   
 $y \geq \frac{2}{3}x + 1$



e.  $y \leq |x+1| - 5$   
 $y < (x-1)^2 + 3$



2. Simplify each expression.

a.  $\frac{12x^4y^{-6}}{(2x^3y)^{-2}}$

$$\frac{12(2x^3y)^2}{y^6}$$

$$\frac{12 \cdot 4x^6y^2}{y^6}$$

$$\frac{48x^6}{y^4}$$

b.  $\frac{2y^5}{36xy^4} \cdot \frac{6(x^4)^3}{(x^{-3})^2}$

$$\frac{y \cdot 6x^{12}}{18x^1 \cdot x^{-6}}$$

$$\frac{x^{12}y}{3x^{-5}}$$

$$\frac{x^{17}y}{3}$$

C.  $\frac{36a^{-2}b^3}{a^5b^{-2}} \div \frac{4a^{-2}b^6}{b^4}$

$$\frac{36b^5}{a^7} \cdot \frac{b^4}{4a^{-2}b^6}$$

$$\frac{36b^5}{a^7} \cdot \frac{a^2}{4b^2}$$

$$\frac{9b^3}{a^5}$$

$$\frac{a^{-2}}{a^5}$$

3. Find the critical numbers (boundary points) using the zero product property, then use a number line test to solve the inequality.

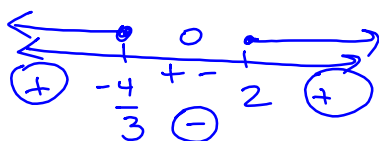
a.  $3x^2 - 2x - 8 \geq 0$

b.  $10x^2 - 30x < 0$

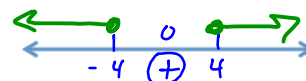
c.  $16 - x^2 \leq 0$



$$(3x+4)(x-2) \geq 0$$



$$x \leq -\frac{4}{3} \text{ or } x \geq 2$$



$$(4-x)(4+x) \leq 0$$

Negative product

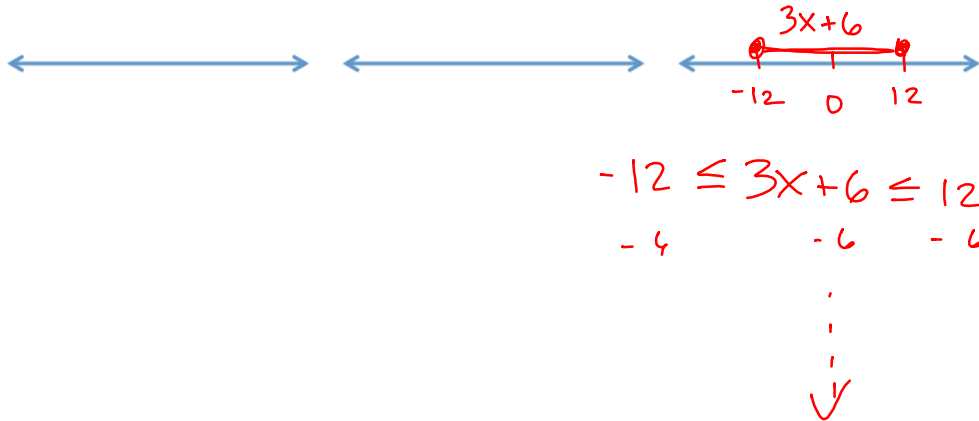
$$x \leq -4 \text{ or } x \geq 4$$

4. Use the meaning of absolute value to set up each problem on a number line, then write the compound inequality and solve.

a.  $|11 + x| < 20$

b.  $|7 + 8x| > 5$

c.  $|3x + 6| \leq 12$



5. Solve the systems of equations below. Then describe what the solution would look like on a graph.

a.  $\begin{cases} 7x + 2y = -3 \\ -21x - 6y = -9 \end{cases} \times 3$   
 $21x + 6y = -9$   
 $\hline 0 \quad 0 \neq -18$

**No Solution**

because they  
are parallel  
lines

b.  $\begin{cases} -6 + 5y = 4 \\ 7x - 10y = -8 \end{cases}$

$5y = 10$   
 $y = 2$

$7x - 10(2) = -8$

$( \quad , 2 )$

Notes:

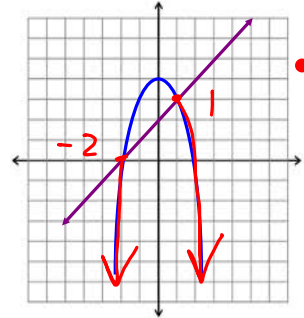
Solving in one variable  $-x^2 + 4 < x + 2$

Answer is in terms of **x only**, not points (x, y).

With reasoning and graphing:

Where is the parabola less than (under) the line?

$$x < -2 \text{ or } x > 1$$



With Algebra:

$$\begin{aligned} -x^2 + 4 &< x + 2 \\ +x^2 - 4 &\quad +x^2 - 4 \end{aligned}$$

$$0 < x^2 + x - 2$$

$$0 < (x+2)(x-1)$$

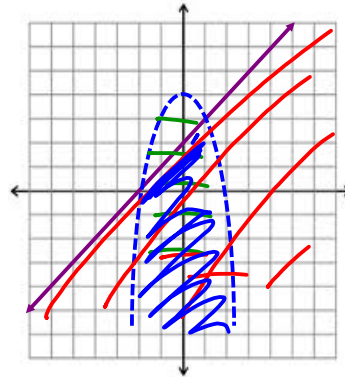


$$x < -2 \text{ or } x > 1$$

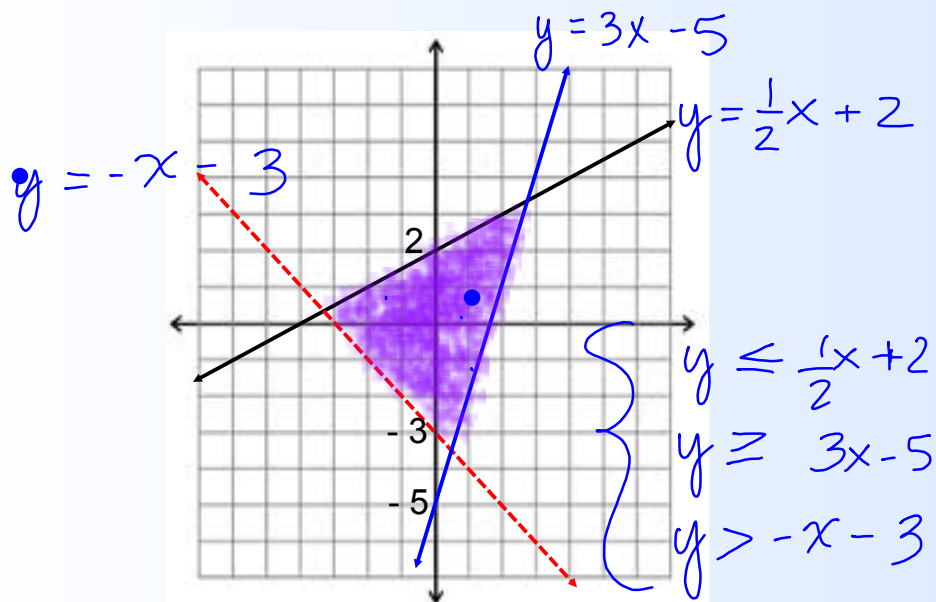
Solve the system of inequalities:

$$y < -x^2 + 4$$

$$y \leq x + 2$$



Write a system of inequalities for the region represented:



Classwork from yesterday:

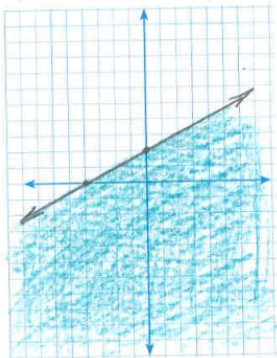
Alg 2B Classwork

Write an inequality for each graph.

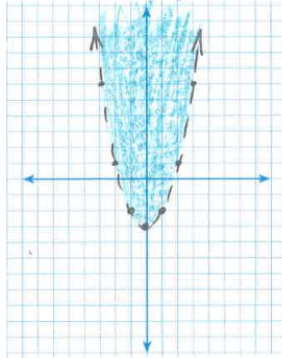
Name \_\_\_\_\_

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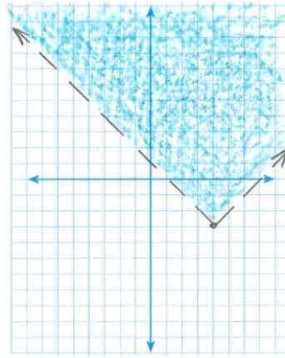
1.



2.

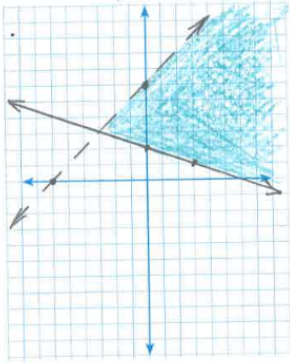


3.

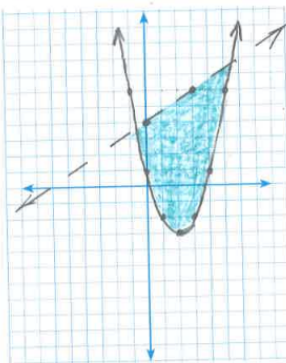


Write a system of inequalities for each graph.

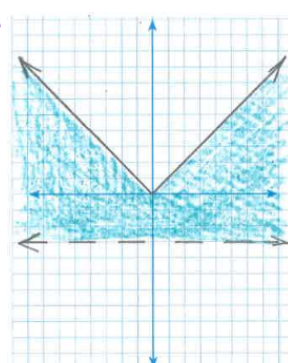
4.



5.



6.



## Week 1 Classwork

Warm Up on top

Graphing Inequalities

Writing Inequalities from a graph

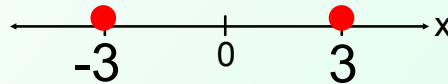
Green Worksheet

\*Classwork packet will be turned in tomorrow.

## Review Absolute Value:

Using the definition of absolute value as the distance from zero on the real number line:

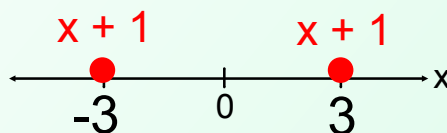
$|x| = 3$  means that the value of  $x$  is 3 units from zero on the number line



$$x = -3 \quad \text{or} \quad x = 3$$

**\*\* Never +, -, x, or ÷, into or out of an absolute value symbol!!**

$|x + 1| = 3$  means that the value of  $x + 1$  is 3 units from zero on the number line

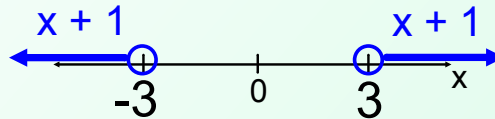


$$x + 1 = -3 \quad \text{or} \quad x + 1 = 3$$



**\*\* Never +, -, x, or ÷, into or out of an absolute value symbol!!**

$|x + 1| > 3$  means that the value of  $x + 1$  is **more than** 3 units from zero on the number line

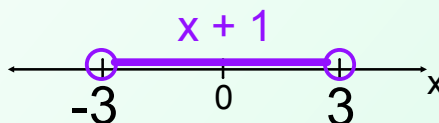


$$x + 1 < -3 \quad \text{or} \quad x + 1 > 3$$



**\*\* Never +, -, x, or ÷, into or out of an absolute value symbol!!**

$|x + 1| < 3$  means that the value of  $x + 1$  is **less than** 3 units from zero on the number line



$$-3 < x + 1 < 3$$

# HW: Ch 4

## Homework WS #3

Short Quiz tomorrow:  
Solving Quadratic Inequalities  
and Absolute Value Inequalities.